A Tilt-Over Tower For $50

Or "Are You Sure This Is Going To Work?"

BY RUSSELL E. LEONE, JR.,* K7HEA

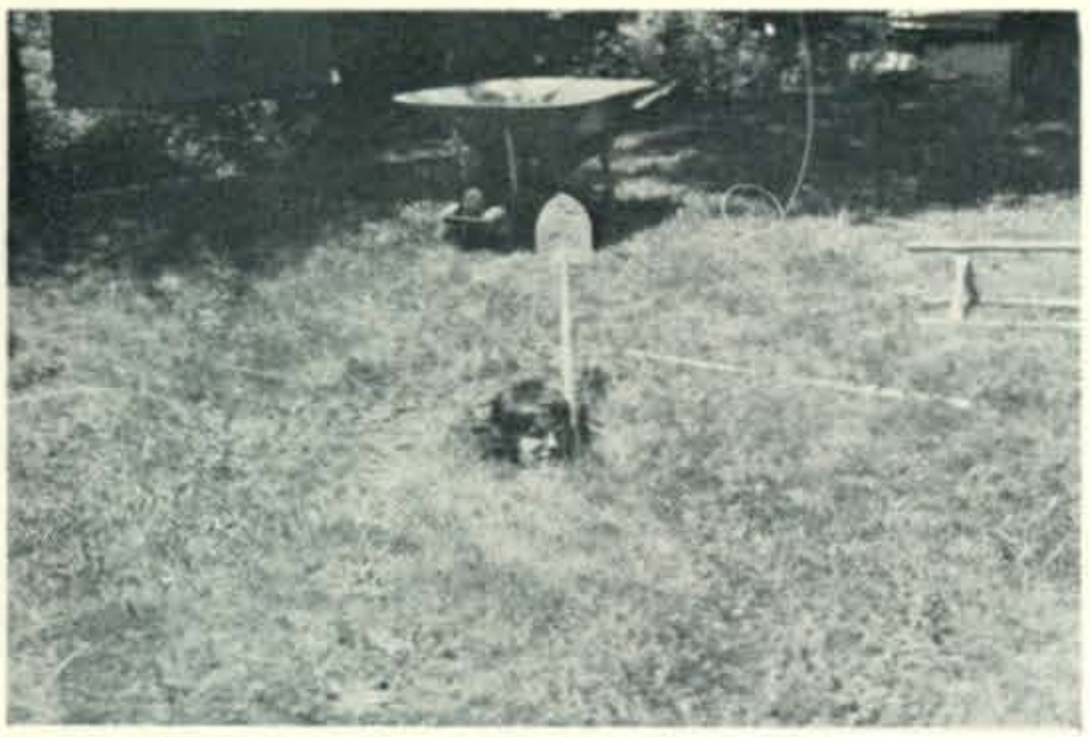
THERE you stand (or cling), some 45′ off the ground, hands full of quad or yagi, and you can't get it on the mast. Or maybe this is the eighty-third time since you put up your beam that adjustments or repairs were needed. And you don't like to spend your weekends entertaining your neighbors with feats of daring. And climbing that tower just isn't as much fun as you think it used to be. Or else you never did like more than one of your feet to leave the surface of the Earth at any given time. (If God had meant man to fly . . .)

I had a conventional tower, guy wires and all (remember what fun it is to get a beam up through the guy wires?), and a new home-brew quad which I was physically unable to assemble while clinging precariously to my 45′ high perch. After two attempts, and some dark thoughts about what would happen if (when?) some bamboo breaks or adjustments proved necessary, it was more than obvious that I had to find some way to tilt that @&%# tower over, stick the quad on, and tilt it back up.

Sound familiar? You bet. And I'll bet that you have often wished you could afford to replace your conventional tower with a tilt-over, fold-over, crank-down, collapsible yum-yum from the local purveyor of such merchandise, (what did you say the price was?) I wanted one. Now I've got one—cost me about $50—and some sweat—and a couple of nights I didn't get to sleep very early because the solution to the problem evaded me. Well, I have a solution to the problem, and I am happy to share it with you.

What if we fabricated a hinge to fit between sections? Seems like that would be fairly easy—then what? Hmm . . . have to build some sort of boom to stick down from the folding top sections so we can attach a cable from a winch to lower and raise the thing . . . now that's a problem. That sort of thing would require a lot of material ($$$) and to hire a welder ($$$) and maybe a truck ($$$) to get the boom to the QTH. No, too much money, too much fabrication, and too many complications would be encountered

* 2030 SW Taylors Ferry Road, Portland, Oregon 97219.



The hole should be deep enough . . .

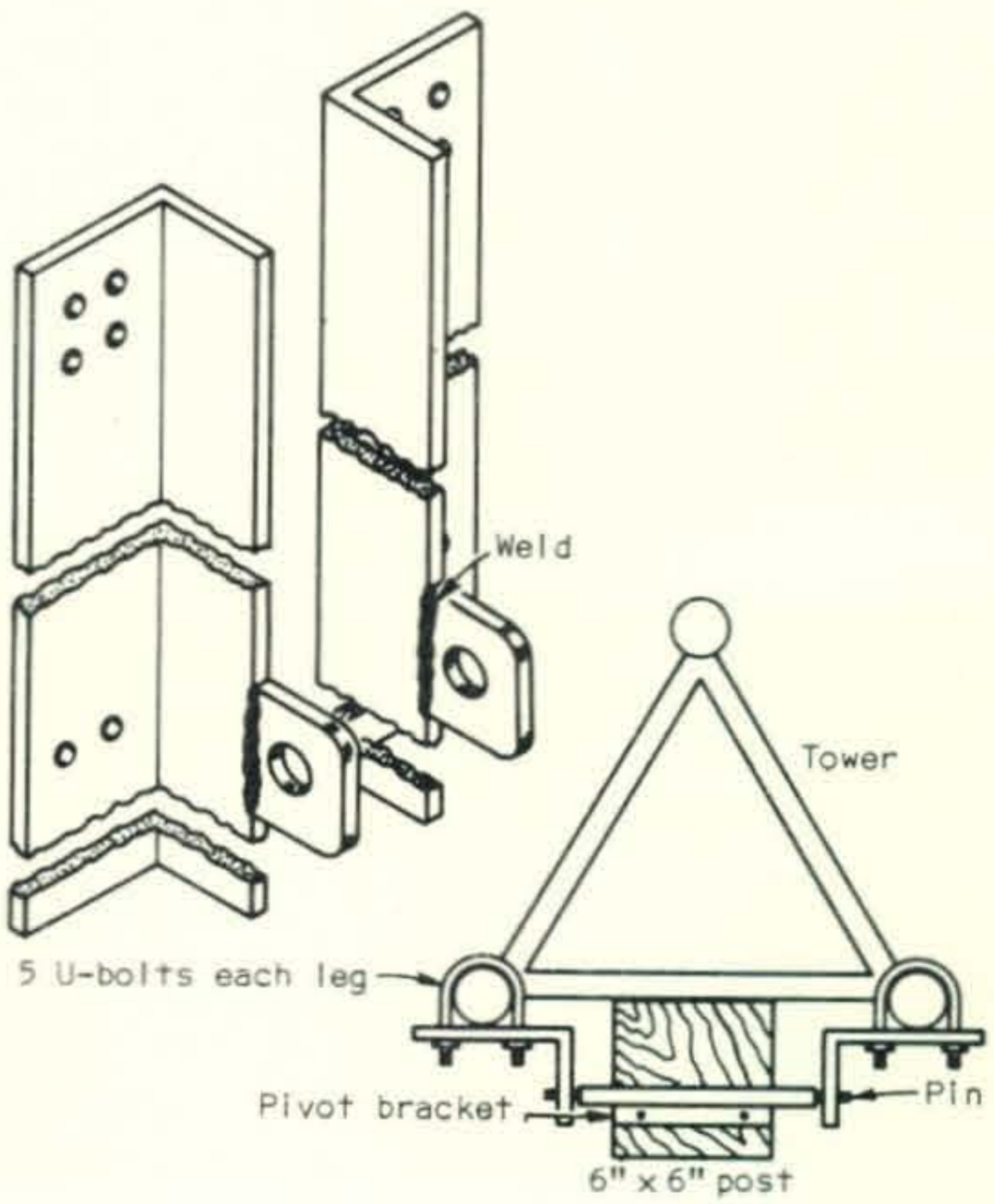


Fig. 1—Construction and installation of tower brackets made from heavy gauge angle iron.

on that course. Now what?

Well, what if we tilted the whole tower from the base? It would be hard to haul back up by hand, and if a winch is used there would have to be some winching point. Now we're getting somewhere, but it sounds like money again . . . besides, we don't have the room. Ah . . . a revelation, a vision!

First, let's get that thing down out of the air (I hope this is the last sky work I have to do . . .) and enlarge that hole. Be sure it's deep enough. Use your own judgment or consult the local expert about width and depth, we settled on three feet deep, eighteen inches wide at the bottom, with sides tapering to the top. In his hole went a six inch square by twenty feet long fir timber, the butt treated and set in an appropriate amount of concrete. Four 10′ sections of tower were assembled and brackets (fig. 1) were attached to the assembly with U-bolts. A pivotal bracket (fig. 2) was bolted to the top of the timber (are you sure this is going to work?), the tower assembly lifted into place, and the brackets coupled with a sturdy pin. Now we have what looks like a large, lop-sided see-saw (fig. 3) (are you SURE this is going to work?). Before the beam goes on, we must tilt the tower upright and cut the guys to the right length (this thing ain't self-supporing), as well as check out the mechanics of the system. That done, back down with the tower, on with the beam, back upright with the system, and we are on the air. To lower our system, it is necessary to disconnect only one guy and the fasteners at the base of the tower. Now we don't have a @&% # tower, we have a tilt-over tower.

I have purposely tried to simplify the above explanation (this project takes sweat, not blue prints and step-by-step instructions) trusting that your natural abilities will lead you through this article and the project. To further that end, I am offering the following suggestions which I believe important and urge you to observe.

In general:

1. The stated cost is around $50, and it was, but materials and related costs will vary with locality, availability, and your bargaining power.

2. Dimensions are not shown as they will vary according to your particular tower and the materials you use.

3. Be sure that your XYL, (are you SURE this is going to work?) has patience, stamina (Be sure it's deep enough.), and a good sense of humor.

4. Don't do this if you are going to move next year.

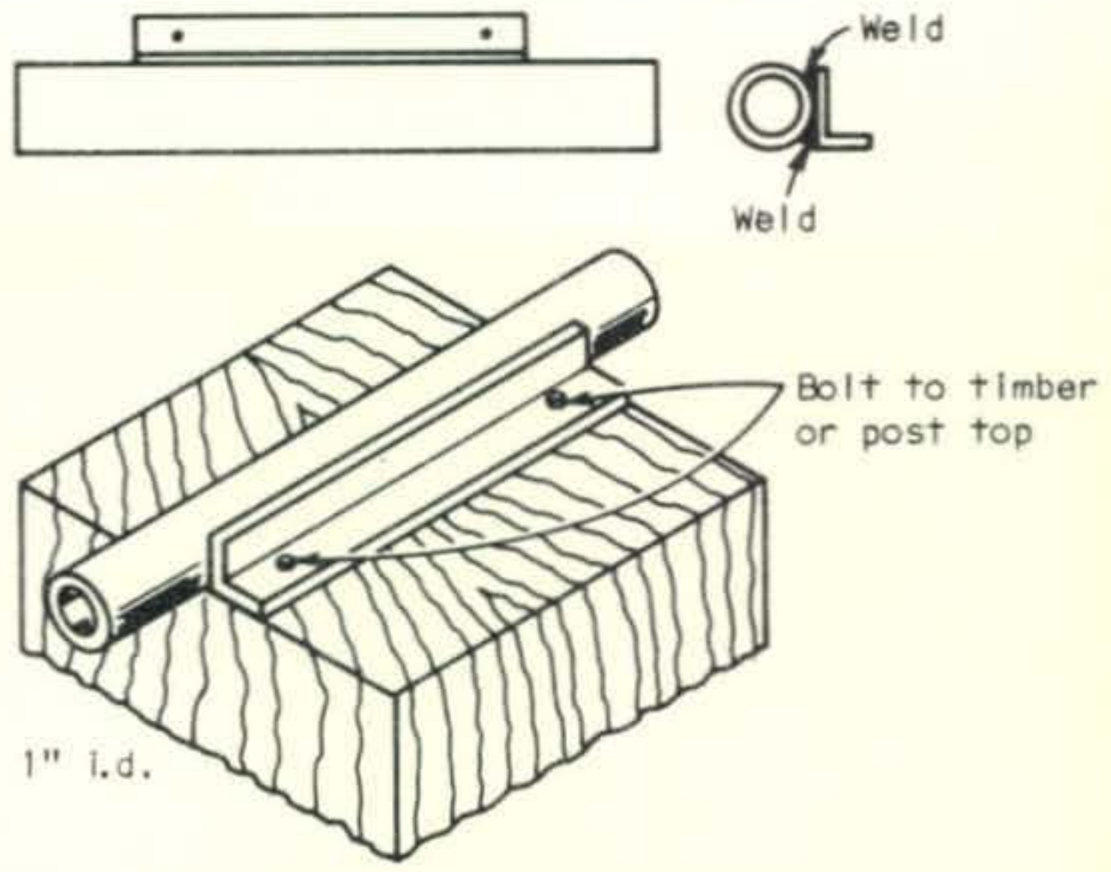


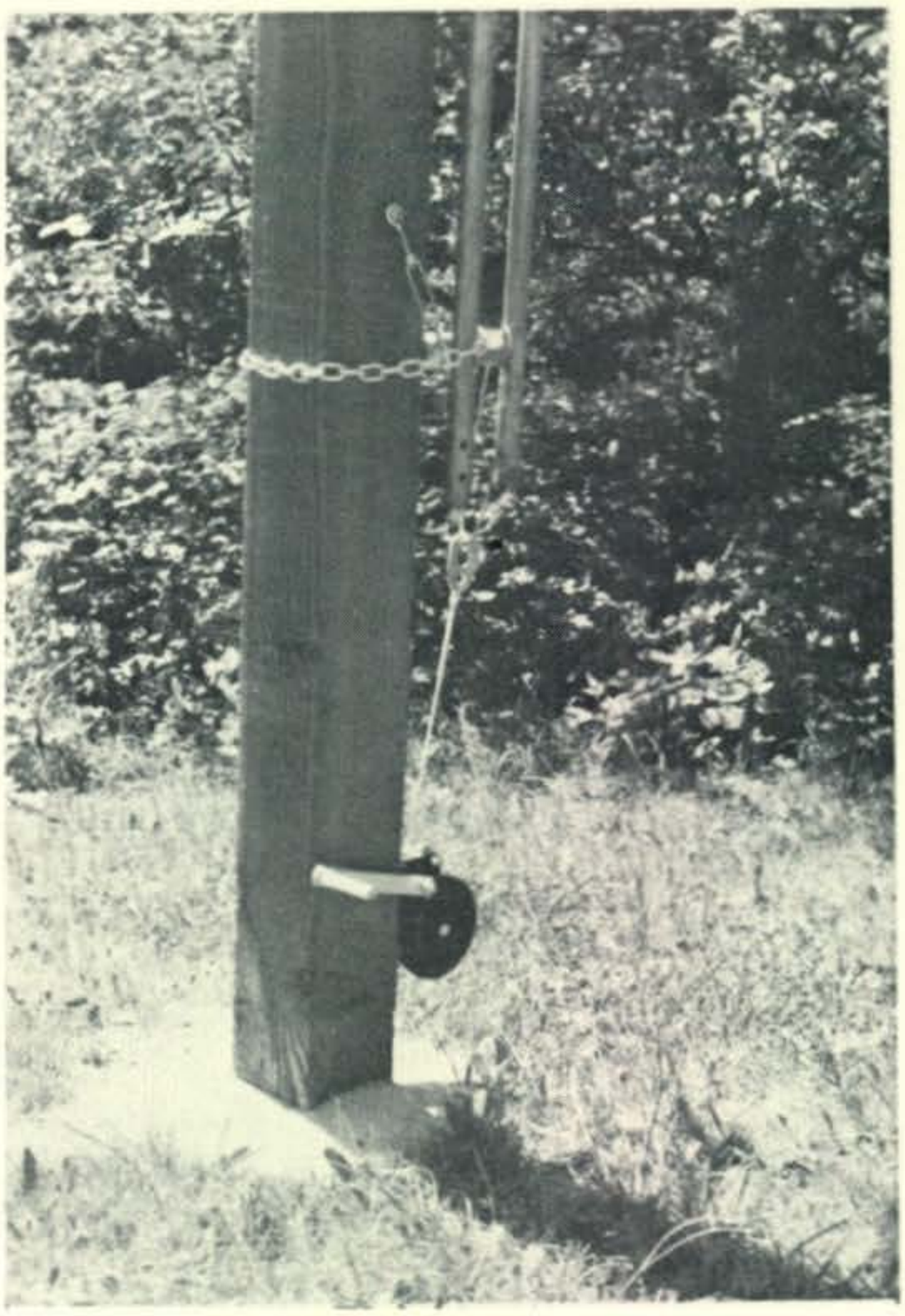
Fig. 2—The pivot bracket is made from a short section of 1" i.d. pipe welded to a 6" long section of angle iron. The bracket is bolted to the top of a 6" × 6" × 20′ fir timber set in concrete.

5. Don't call me if it doesn't work.

Specifically:

1. Pick the location for your tower carefully, being sure the beam and the lower end of the tower have room to clear surrounding objects.

2. Let the concrete cure one week before putting the tower in place. I am told this allows the



A double-ratchet boat winch bolted to the bottom of the timber allows easy raising and lowering of the tower. Note the chain used to secure the tower against curious children.

Tilted over, the author's tower shows only a slight bowing.

concrete to set sufficiently hard to bear the lateral thrust created when placing the tower on top the post, and later.

3. Use a double-rachet boat winch (try Sears) and be sure to attach the winch line to the lower end of the tower before lifting it into place. Also, carefully consider the weight the winch line must bear, and choose it accordingly.

4. It would be well to arrange some sort of pulley to enable you to lift the tower into place without resorting to brute strength. The winch, which is bolted to the post near ground level, should help a great deal. I didn't think my tower was very heavy and didn't use such an arrangement—an error which weighed heavily upon me.

5. Don't depend upon the top of the post to

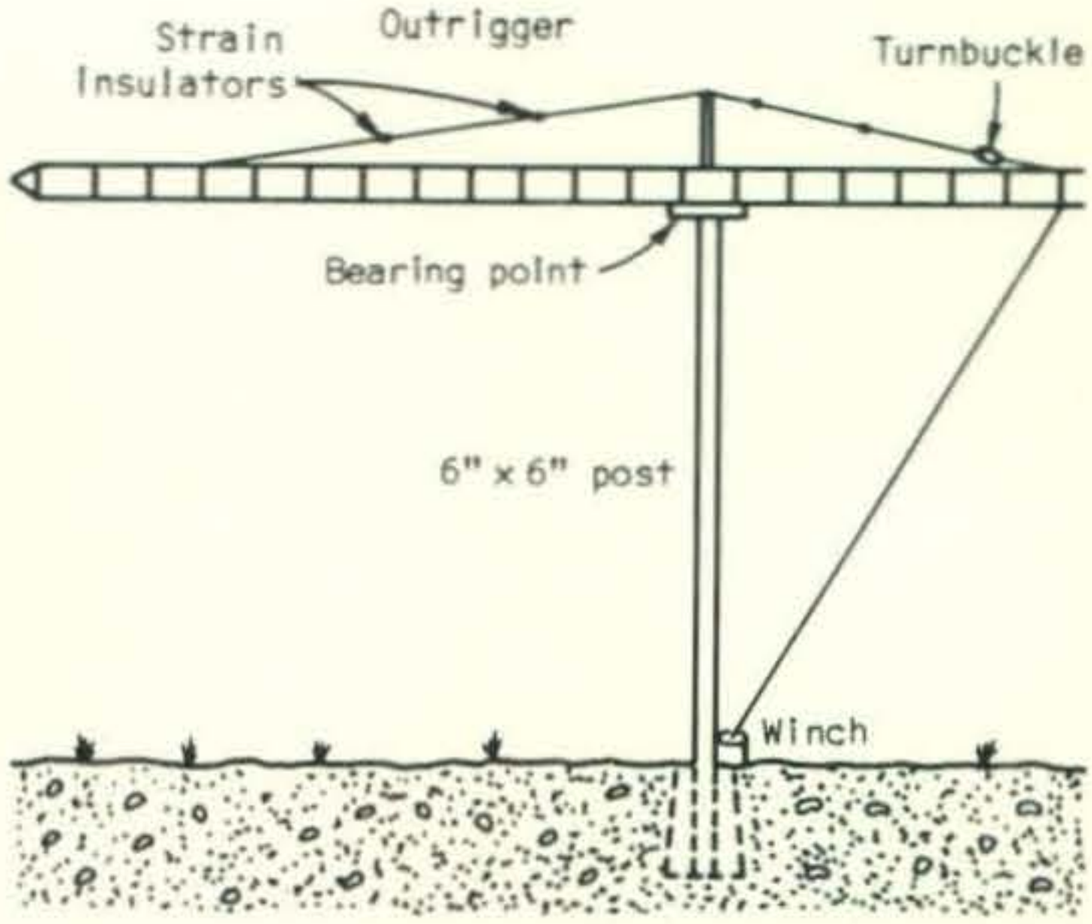


Fig. 3—In the tilted position the tower resembles a lop-sided see-saw. If the tower requires it, an outrigger assembly may be added for rigidity.

bear all the weight of the tower and beam, use some turnbuckles (or some similar device) at the bottom to hold the tower tightly against the post and help bear the load (see picture). As you can see, the cross pieces in the tower should fit tightly against the entire length of the post. Carefully take measurements of your tower and carefully consider placement of the brackets to insure your success.

6. Don't be alarmed at the limberness of the post if you should happen to be startled by the give in it when placing the tower. Presumably, you, or someone easily bribed, will be standing on an extension ladder leaning against the timber while the tower is lifted into place and the brackets coupled.

7. If you believe your tower is not strong enough (or don't want to experiment) to stand the weight of the beam when the assembly is horizontal, you won't be alone. An outrigger at the bearing point is suggested (fig. 3). Use guy wire, a turnbuckle, and (if you think it necessary) break it up with strain insulators to prevent loading. Use your imagination on the outrigger itself as I didn't think one necessary on my tilt-over (so far I'm right).

8. As an afterthought, I put a chain through the legs of the tower near the bottom and around the timber, padlocking the ends together. Hopefully this serves as a deterent to vandalism or a harmonic's curiosity.

There are many variations that can be made to this project for your particular needs. Perhaps a bigger timber (around or in length), or a short telephone pole instead of a timber, or another section of tower, or some other variation may appeal to you. My tilt-over works as told and illustrated here. We hope that you can profit from our project. Good hamming—hope to see you on soon with your new tilt-over. ■

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